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EMO

Red China's Foreign Policy

Water Utility

Municipal Planning

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"At this time of the year I would like to take the opportunity to join with the Director General, officers and staff of Canada Emergency Measures Organization, in extending to readers and contributors all good wishes for Christmas and the New Year."

C. M. Drury,
Minister of Industry,
OTTAWA.

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Director General: C. R. PATTERSON *Editor:* A. M. STERTON

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1967

RED CHINA'S FOREIGN POLICY

by

G. R. Taylor

Editor's Note

The following address was presented at a Canada Emergency Measures Organization Senior Officers' Seminar at the Canadian Emergency Measures College, Arnprior, Ontario, in September 1967.

When the scheduled speaker, Prof. James Barrington, University of Alberta, could not attend because of illness, Mr. G. Taylor, on less than a day's notice kindly agreed to present his views on Red China. His extremely interesting and provocative address was presented without notes to an audience of about 125 federal and provincial government ministers, deputy ministers and senior officials from all parts of Canada.

The following is a transcript of his recorded presentation.

The addresses of other Seminar speakers will be published in future editions of the Digest.

I was taught in my youth that one should never begin to give an address with an apology; one should give the apology last. But I am going to begin today with one. I apologize that you will be disappointed not to hear the address of Prof. Barrington, who is ill. I know him, I have met him through the Association for Asian studies which is a very important Association in North America, and I know something of the quality of the address which he would give you. Moreover, as you will observe from the biographical data provided, his own experience in East Asia has been in Burma and here in Canada we have all too few persons who have had experience in Burma and who can deal with any question of East Asia, I shan't say in a Burmese context but at least in relation to Burma.

ABOUT THE AUTHOR

Mr. Gordon R. Taylor, who now resides and teaches in Pembroke, Ontario, was Director of Far East Intelligence during the Second World War. He served with both the Royal Navy and the Royal Canadian Navy. Following the war he was a consultant of East Asian Affairs to several Canadian and British government agencies.

Mr. Taylor reads, writes and speaks Chinese and has published material relating to China in both English and Chinese.

A former lecturer on Asian affairs at the University of Michigan and London University, he inaugurated teaching of East Asian History at the University of Western Ontario, London, Ontario two years ago.

I noticed by the brochure that Prof. Barrington was going to speak to you on Chinese foreign policy. By that, of course, we mean at this time, Communist Chinese foreign policy.

I propose to begin with something which may seem to you rather far removed from Chinese foreign policy altogether. And that is the Confucian world view. Confucius was an eminent Chinese thinker who lived in China at the same time that Socrates and Plato were living in Athens; and although he did not hear of them nor did they of him, in many respects their thoughts ran in parallel grooves but they did not come to the same conclusion. Moveover it is true that Confucius through his thought has influenced more people in this world in the course of history than has any other philosopher, either Eastern or Western.

At the moment China is in a state of confusion, as we all know from the public press. We are bothered by the "cultural revolution" and by the Red Guards movement. But let us think of the Confucian world view, because these two movements in China today are different reactions to the Confucian world concept. Confucius knew only a very tiny part of the world, in fact not even the whole of one province of what is now China, but he thought of it as one world. The part of China in which he lived was, at that time, highly civilized, the most highly civilized part of China. And the rest of what is now China was very poorly civilized, most of it was totally uncivilized. Therefore, he pictured his own state as if it were a centre or a nucleus about which the rest of the world revolved. For this reason he referred to China as Chung-Yvan, which means the middle country. This basic concept has remained the Chinese world view and is still the Chinese world view. China is the centre of the world and all the world revolves around China. Of course, a similar view was held in ancient times by the Romans

who referred to Rome itself as the centre of the Orbis Terrarum, the centre around which the whole world revolves. Confucius had a very orderly mind and so he thought of the government of China, as being that which was desirable for the whole world as he knew it. Moreover, the only culture and civilization he knew was Chinese culture and civilization. Therefore he referred to the ruler of China as T'ien-tzu, which means the Son of Heaven,—the Son of Heaven ruled the middle kingdom. From these basic concepts all his other political theories derived. He had notions of ethics and of politics, which were interwoven with this as the centre of his thoughts.

As the years went on, long after Confucius died these thoughts spread abroad. More and more persons accepted these ideas. It may be pointed out that in the course of history the spread of these Confucian doctrines very often depended upon Chinese military aggression or Chinese political expansion. But it must always be borne in mind, and this is still true at the present day I believe, that China has always considered itself not as a political but as a cultural entity. And this I think is basic to the thought of Mao Tse-tung, as it is to the thought of all intelligent Chinese. China is not a political but a cultural entity.

With the passing of the years, as China extended farther and farther, naturally she came into contact with people who were not, from a Chinese point of view, civilized. These persons were described as Barbarians. Not a very complimentary term, but it has persisted to the present day. This also is basic to Chinese thought, and has done a great deal to colour the varying attitudes of China toward her different neighbours round about her, even at the present time to those on the periphery of the Republic. If foreign people accepted Chinese culture, whether or not they came under Chinese political rule, as we understand the term, they were regarded as being Chinese. That concept remains until the present day. Therefore the Japanese, who have always been politically independent of the Chinese, are regarded as Chinese culturally. Similarly the Koreans and the people of what we call nowadays Viet Nam. That part of the world also is to a large extent, and especially North Viet Nam because it is closer to China, culturally Chinese. It is true that at various times, various parts of this territory have been under Chinese political rule. When the Chinese dynasty was strong, the rule was strong; when the Chinese dynasty was weak, the people of that area threw off the Chinese political yoke but remained Chinese culturally. The case of Siam is somewhat similar. The people of Siam or Thailand, are of the same race as the Chinese and their language is basically of the same family as that of China. Now all these things must be borne in mind when we think of the course of Chinese history, and when we think of the present moment in Chinese history.

According to Confucian theory, Tien-tzu, the Emperor, the Son of Heaven, because he is the Son of Heaven, has been granted by Heaven the divine right to rule all under Heaven, to rule the whole world. By that we mean to bring the whole world within the ambit of Chinese culture and civilization. In other words, his task is an enlightening task and his role is frankly a missionary role. He is to bring light and civilization, the light and civilization of Chinese culture, to the benighted Barbarians who happen to live on the periphery of the Middle Kingdom.

Chinese culture is to be spread by the study of the Chinese classics, that is the Confucian classics. The first of the Chinese classics, which every Chinese school boy learns is the "Analects" of Confucius, a collection without order or arrangement of the sayings of Confucius. One may readily note the present-day parallel in the little red books of the sayings of Mao Tse-tung. The way in which Chinese civilization was to be spread was by the memorization and the recitation and thereby by imprinting upon the character of the person the "Analects" of Confucius. You, perhaps smiled to yourself when you read in the public press recently, that outside the Chinese Embassy in London, England, there were some persons there, not all of them Chinese, who were just simply walking up and down reciting the words of Mao Tse-tung. This is in very good Chinese classical tradition, and every Chinese Communist, even if he cannot read, so we are told, carries with him the little red book containing the sayings of Mao Tse-tung. Truly there is a certain magic value associated with this, and we pride ourselves, especially this group here in not believing in magic values. But it may well be that we shall have at least to take cognizance of magic values or at least with the messianism associated with the thoughts of Mao Tse-tung.

About the year 220 B.C. China passed out of her feudal period and became a strong united Empire. This is a great source of difficulty to Chinese Marxists. With the Chinese world view, the Confucian world view. Various states around the periphery of China were obliged, as they became Chinese in culture, to prove this by sending embassies and tribute to the capital. These representatives, these ambassadors, came from various countries on the edge of China, bringing with them tributes to the Son of Heaven, and this was regarded as the way exactly in which things should be. And it was thought by the Chinese that as time went on, more and more countries would become Chinese in civilization and would send more and more tributes. This theory of international relations based upon tributary offering is something totally abhorrent to the Western world. It was not until about 1500 that Westerners came into contact with the Chinese, or put it the other way around, Chinese came into contact with Westerners in any large number. At that time the Portuguese and the Dutch had gone around the Cape of Good Hope, had crossed the Indian Ocean and

passed up to the coast of China, to be followed by the British, and later still the French. In the Western world, from the Renaissance until the present, the concept of international relations has been one of equal states, more or less bound by relations based upon contracts and treaties. This notion of mutually binding contractual relations is totally foreign to the Chinese, and anyone who has read of the early contacts of the Chinese and Westerners knows that these contacts resulted in a series of wars. In the British world the first contact really came with the Lord McCartney mission in 1792. Lord McCartney demanded the right to go to Peking, and was taken across China in a cart labelled "Foreign Barbarian Representative Bearing Tribute from the 'YINGS' ", the 'YINGS' being the English, (the first syllable of "English" being accented). This concept of tributary relationship has remained part of the Chinese idea of international relations.

The clash of concepts has been very bad, especially in the 19th century. China had a series of wars with foreign powers and lost every one of them. Furthermore, every defeat was accompanied by a loss of territory. That was how the British gained Hong Kong. Naturally there rankled in the Chinese mind a tremendous sense of humiliation and defeat. Westerners may well say that surely by this time the Chinese ought to have learned that the old Confucian concept is no longer applicable in the present day. Not at all. After all the notion came from Confucius, the great philosopher, the source of knowledge in China. Yet today we do see just the beginnings of a doubt of this older Confucian concept of the world. Some of you may have read that remarkable little pamphlet by Prof. C.P. Fitzgerald of the National University of Australia in Canberra, in which he discusses the Confucian world view, and in which he also relates it to Communist Chinese thought as it was at the time when he wrote the book about 12 years ago.

Japanese political scientists have endeavoured to achieve a synthesis of these two rather antithetical positions, the Eastern and Western notions of international relations. But even in the case of the Japanese the attempt has not been entirely successful.

Even the Nationalist government of China, the Government of Chiang Kai-Shek and before him the government of Sun Yat-Sen accepted this concept even if to a certain degree. While retaining Confucian values in many other fields, the Nationalists attempted to bring China within what we in the Western world call the "Family of Nations", but they were only partially successful. It is notable that the Communist government of China, which on the mainland at least has succeeded the Nationalist one since 1949, has abandoned Confucius, partly because the Nationalists had espoused him. But mainland China has not repudiated the Confucian concept of international relations. The Confucian concept of the world state, not the Wendell Wilkie theory of one world, but of the world state which enjoys the benefits of Chinese culture and civilization is still alive for the Communist Chinese.

In repudiating Confucianism as a basis for what might be called the national side of their ideology, the Chinese Communists had to find something else. Of course, they claimed to be Marxists, yet anyone who has looked into the history of the Communist movement in China is impressed by the great number of times that the Chinese Communists, particularly after Mao became leader in 1931, have disagreed very, very openly with the dicta which came from Moscow. For example, even before 1931, emissaries would arrive from Moscow bearing directives intended to implement the Chinese Communist revolution. Largely Marxist in their conception, these directives exhorted the Chinese to inaugurate a revolution based upon the industrial proletariat. But as Mao quite correctly pointed out at that time, there was not any Chinese industrial proletariat. The country had not yet been industrialized. The only factories there were in the whole country were in Shanghai and Canton and a few other coastal cities, and for the most part they were owned by foreigners. Mao rejected the idea that a successful Chinese revolution must be based upon the industrial proletariat. This has continued a basic difference in point of view betwixt the Slavic Communism and the Sinic. And I think, for some time to come, this will indeed remain a basic point of difference. In fact, Mao frequently pointed out to his colleagues before he became leader, and then to Stalin after he became leader of the Party in China, that with the single exception of Japan, there was no industrialized states in Asia and that therefore a successful revolution would have to be based not upon the industrial proletariat but upon the peasantry.

Now let us go back to 1931. In 1931, Mao became the leader of the Party in the conference held in January of that year in the province of Szechwan. Within a very short time, Chiang Kai-Shek and his forces obliged the Communist to undertake the Long March to the extreme North-West, to the province of Shensi, where they established themselves and remained until after the war with Japan.

While they were fighting the Nationalists the Chinese Communists had to rely upon the assistance of the local peasantry. This is when Mao wrote his very famous book on guerrilla warfare. I hate to rob Mao of originality but actually much of what Mao wrote in his book was based on a very old Chinese book, written by Hsun-tzu the philosopher about 270 B.C., called "Ping Fah" which means "the Art of War". This book has been translated into English and it has appeared, I am told, in five French translations. I have seen only three. It has appeared in Russian, Italian and German and is now being translated into many of the languages of Africa. This is a book which explains the tactics of guerrilla warfare in such a way that the Communists were able to adapt them to the 20th century, and to use them successfully against both the Nationalists and the Japanese.

After the war was over when the Viet-Minh in what is now Viet Nam decided to try to throw off the French yoke and finally were successful in doing so, the tactics which these people employed were derived directly from the little book of Mao Tse-tung, which in turn was derived from Hsun-tzu. Quite aside from its military value, the importance of Mao Tse-tung turning to a Chinese philosopher other than Confucius, in this case Hsun-tzu, is very important for our topic today. As I said, the Communists felt obliged to turn their backs on Confucius simply because, although he was a great Chinese philosopher, he had been espoused by the Nationalists, and they certainly felt they could not afford to espouse what the Nationalists were espousing. So they looked around for another Chinese philosopher whom they might look to for help and guidance and perhaps also upon whose teachings to base some of their tactics as well as ideology. Not all Communist activity is directed toward war by any means, and war, so we were told early this morning, is regarded simply as a means toward an end. Therefore the Chinese looked for another Chinese philosopher, an ancient one of good repute other than Confucius, upon whom they might base their concepts and their aims other than military. They have turned, perhaps at first unconsciously, and this is a very open question, to the ancient Chinese philosophy of Taoism. I have not time today to go into a full treatment of Taoism but one of its two essential features is the doctrine of Wu wei which means not doing, inaction, non-action. Taoism is expressed in a series of paradoxes, as is so much of philosophy. For Wu wei the basic principle is that if you want to get something done you do not do it. This is the doctrine which is now being espoused. Wu wei—not doing—in order to do something, do not do it.

Now I want to point out to you one or two examples of this. They will come to you not as a shock because you are familiar with the examples but you have not thought of them in these terms. Professor Gregor referred this morning to what was happening five years ago now. There were two significant happenings in the world just five years ago. One of these was the Cuban crisis, in which the Chinese were tremendously interested. Perhaps not all of you are aware that behind the Cuban crisis there was a great deal of Chinese activity. At the same time as the Cuban crisis there was the Chinese war with India, a border war concerning a very bleak and remote part of the extreme west of Tibet. This engagement with India was carried on in purely Taoist terms.

Previous to this war the Chinese had prepared, for what they wished to do by making a treaty of commerce and friendship with Pakistan. This treaty had two aims. According to the terms of the treaty the Chinese were to be allowed to fly from their airports in Eastern China, come down at Karachi and refuel, if necessary, and fly on to any other destination they might wish. Their purpose was to use Pakistan as a staging place on the way to Zanzibar and other ports of East Africa for the penetration of Africa. That aim was achieved at that time although it has since backfired and the Chinese Communists have suffered reverses in Africa in the last few years. However, the other aim of the treaty was to seal off India by land. From the Chinese point of view, with the Confucian notion of tributary states, Pakistan became a tributary state. In other words, the Chinese felt quite safe and secure about Pakistan, while India was cut off by the treaty. The treaty was principally directed against India. Finally war broke out between China and India concerning the border. The war was concerned with places in the extreme northwest of Tibet but to the East, in the North of Assam, there are passes through the Himalayas. The Chinese fought their way down, through the difficult part of the mountains into the open plain of Assam and at that time the whole of India lay open to them. The Indian government made frantic appeals to the Commonwealth nations to send military aid. Canada did, Britain did, as did certain other countries. The Chinese were right on the border of India, with thousands of troops and the whole area lay open before them.

Moreover, the province of Kerala in South West India, had a Communist government, which, at that time, was friendly to the Peking regime. With this opportunity any strategist in the Western world would immediately push into India, go across Assam, aim directly for Calcutta, and then, if possible, push up the river to Delhi itself. But the Chinese did not do this. They announced over the Peking radio to the whole world that they would not advance one more foot in India. Now they had accomplished their purpose. They had managed to terrify India. They had managed to demonstrate to the Communists of India, many of whom at that time were wavering in their allegiance between Moscow and Peking, that of the two, the Chinese Communists were on their doorstep and they were cut off from any Russian aid by land, because of the treaty with Pakistan. They demonstrated their ability and their power and thereby hoped that they would convert all those who were undecided about the Power of Communism. This is an example of the Wu wei theory of the Chinese Communists and I think we shall find more applications of it in the future. My own interpretation of the Communist Chinese interest in Hanoi is another example of Wu wei. They are active by not being active, and they are accomplishing what they wish to accomplish by not accomplishing it. This may seem to you, very paradoxical but this is the theory of Wu wei, a theory which I think will govern Chinese foreign policy for quite some time to come. We shall see it very presently, I think, working out in other parts of the Eastern world, let us say within the next five years.

Having said that, I wish also to quote what Mao said in his New Year's Day speech in 1955. This appeared in the public press and you might have read

it at the time but did not probably pay much attention to it. Mao said, and I am here quoting his exact words. "It will be the foreign policy of the People's Government of China to restore the boundaries of the T'ang dynasty." The T'ang dynasty ruled China from roughly 600 to 900 A.D. and the Chinese regard the T'ang dynasty as the peak of their cultural, not political, development. The high peak of their political development is the Han dynasty. Politically China covered more of the world in the Han dynasty, coming right to the borders of the extreme eastern part of the Roman empire, than at any other time. Mao chose the T'ang, because, from the Chinese point of view, the T'ang is the period of regular Chinese cultural preeminence and achievement. In the T'ang dynasty all of what is now China except Tibet was part of China politically. With regard to tributary states, the whole of Korea and Manchuria were tributary states. But at that time Manchuria extended across the Amur River right to the coast. The realization of that fact has, of course, tremendous implications for the Russians and is the cause of constant friction at the present moment between the Chinese and the Russians. Formosa, strange to say, was not part of China in the T'ang dynasty. Although the Chinese seemed to know of its existence because they made references to it in their writings, imperial annals and gazetteers of the period, nevertheless they seemed to ignore Formosa altogether, until the Ming dynasty, several hundred years later. The Philippines, the Chinese likewise ignored, but North Borneo was definitely considered as a tributary state even in the T'ang dynasty.

Similarly, most of Viet Nam and the extreme north of Thailand were definitely considered tributary states. The upper part of the Malay Peninsula was also ignored by the Chinese but Singapore and the adjoining area were not, because of their great natural wealth and even at that time they were considered parts of the empire. Likewise in the T'ang dynasty Burma was regarded as a tributary state. In passing westward along the border of India we come to Assam, Nepal, Sikkim and the rest of them. They were regarded, not as tributary states except Nepal. The Nepalese are Buddhist and as Buddhists used to send tribute not to the Emperor of China but to the large Buddhists monastery in Peking. The Chinese however were pleased to regard as this tribute for the Emperor and so rather by proxy they claimed Nepal as a tributary state. With regard to what is now Russia in Asia, the whole border area right from central Asia across to the north east coast of Manchuria—all these areas were regarded as tributary states. These include Turkestan, Dzungaria and Mongolia.

As Mao had said, the aim of the policy will be to re-establish the boundaries of the T'ang dynasty. He did not say how this was to be done, but if we think of it in terms of what has been the practice in the Western world of Marxist states, then of course, we say this will possibly be done by subversion within these various states. And certainly this had appeared to be the way in which it is being attempted. It has not been very successful as we can all see. This re-establishing of the boundaries of the T'ang dynasty will also affect Hong Kong. At present it suits the Chinese not to take it. They could do the same thing there as they have done in the case of Macao, nominally Portuguese but being run by Chinese. So long as the American Seventh Fleet is patrolling off the coast of China, then the Chinese Communists need Hong Kong as a port of egress and ingress. But once that need is no longer there, the Chinese may decide to take it from the British and subordinate it to Canton.

At the present time with so much emphasis on the Red Guard activity and the Cultural Revolution we are not allowing ourselves to think a great deal about Chinese foreign policy. There is one point which the Chinese must clear up for themselves very quickly. We have seen evidences of its necessity, and these evidences are just as obvious to the Chinese as they are to us. They have to come to some sort of modus vivendi with the Moslem world. The most recent manifestation of this was in the case of the Arab-Israeli war. The Chinese nominally supported the Arabs, but not because of the Russians doing this. This was a confrontation with the Moslem world. This embarrassed the Chinese very much because they have a large Moslem population of their own in South West China and also, and this is much more important from their point of view, in Sinkiang or Chinese Turkistan, a huge area which lies on the border of Russia. You will recall the Chinese atomic experiments are all of them centered in Turkistan.

Moreover, Chinese foreign policy such as it was, did suffer a series of reverses two and three years ago. Just two years ago now, almost to the very day, occurred the change-over in Indonesia, a Moslem state. Until that time Indonesia had been very pro Peking but with the coup d'etat, the Pro-Communist element was excluded from the government and the relations with Peking, from that time until the present, have been most unfriendly.

This is very embarrassing to the Chinese, particularly in view of the situation then in Malaysia and likewise in Viet Nam. Some people suppose that with their Chinese sense of timelessness, they may have intended a pincers movement from the whole of that South Eastern Asia peninsula, for which Indonesia was to be one side of the pincer. Whether or not this is true, the fact remains that the Chinese Communists did lose out very badly to Indonesia and insofar as Indonesia is concerned the Chinese Communists are still a lost cause.

The Chinese Communists, however, are not entirely smarting from these various defeats. They were very badly defeated in Africa and their position in Cuba, at the moment, is anomalous.

(Continued on page 18)

THE WATER UTILITY IN THE NUCLEAR AGE

by
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Regional Director (N.S.)
Canada Emergency Measures Organization

The following article was extracted from an address presented to the 20th Annual Meeting of the Maritime Branch, Canadian Section, American Water Works Association At St. John's, Newfoundland on September 19th, 1967. The meeting was a two-day technical session and was attended by 235 Water Works Engineers, operators, consulting engineers, equipment suppliers and their ladies from the Atlantic Provinces, Ontario and Quebec.

It is a pleasure and a privilege for me to speak to you today, particularly as I see before me many people with whom I have enjoyed a close association in the waterworks field for many years.

During the last ten of those years, I have also been closely associated with civil defence, or Emergency Measures Planning. My task today is to try to relate these two for you and to demonstrate how closely they are tied by discussing the water utility in this Nuclear Age.

Over these years, municipal, provincial and federal governments have been making preparations and plans which would permit them to move into a war situation with some degree of effectiveness; but I have realized from the beginning, even when I was on a part-time basis, that it will be at the municipal level that we must have immediate and positive action prior to and following any attack or nuclear disaster if the lives of our people are to be saved. Many communities now possess a real capability to deal with an emergency.

Fallout on water

Because fallout is carried so far and covers such a large area, it could be the greater danger to the largest number of Canadians in a Nuclear War. How would this affect your water utility?

Fallout settling on the surface of the earth will contaminate any water with which it comes in contact. This means that our water supplies may be contaminated in the following ways:

Immediate Fallout—fallout deposited on lakes, reservoirs and flowing rivers or open aqueducts from which supplies are drawn.

Delayed Fallout—fallout deposited on watersheds and washed into supply tributaries, or reaching other surface water supplies.

Deferred Fallout—fallout deposited on snow or ice on watersheds and frozen rivers, lakes or reservoirs.

Dealing with such widespread fallout appears to be a formidable task but recent studies show that it has been overemphasized in the past. But it is well to consider that "all risks are comparative. Under serious attack conditions the threat from radioactive contamination of water would be overshadowed by the general fallout threat. But in isolation it could be worthwhile doing something about it. Radiation is harmful and consuming radioactive water is not recommended. It's a bit like the old analogy of trying to stop smoking while you're bleeding to death. One risk is insignificant in the presence of the other; alone it could be very demanding."

Your last paper on this subject was presented to your 12th Annual Meeting at White Point Beach in September 1959—nearly ten years ago. At that time the symposium's main points were:

- that the Emergency Measures Organization is not an operational body, but is set up to help communities help themselves; that each community must be prepared to handle its own emergency water service. This still applies.
- At that time I urged, with apparently little success, that this places a responsibility squarely on the shoulders of waterworks operators with a need for accepting this responsibility. This still applies.
- Dr. F. C. Pace, who at that time was medical consultant to Federal Health Services, stated "that there were two hazards to radioactive fallout—external and internal; and that this latter hazard was long-lasting and dangerous. He suggested that the problem therefore was to get a comparatively simple screening method of determining radioactivity; and that it was the water engineer's duty to carry the people of his community through a post-attack period with a safe water supply." It is still the water system operator's responsibility to bring his community through with a safe water supply.

However in May of 1966, the NATO Scientific Working Party met in Paris. Two recognized authorities, R. Scott Russell of Britain and J. C. Green of the U.S.A. gave research reports. Out of their discussion the following conclusions were reached, which have been accepted by Canada EMO and Department of National Health and Welfare; and these represent an advanced change from our 1959 concepts:

- The hazard from contaminated water is very small compared to that from external radiation—i.e. on the body surface.

- People or animals should NOT be denied water because of possible fallout contamination if this action is likely to prejudice their survival.
- Also in the first few weeks the water from wells should be used preferentially to that from open impounding reservoirs in very heavily contaminated areas.
- It is not practicable or desirable to pre-set maximum permissible limits as a basis for judging whether or not contaminated water should be used.

Burke Stannard, Scientific Adviser to Canada EMO has also stated that:

- Washing of fruits and vegetables, washing and milling of grain and simple filtration of water will remove most radioactive particles. If food or water is palatable and free of grit there is little hazard of ingesting significant quantities of radioactive material. Therefore the actual measurement of contamination in the water source is no longer important for the survival phase for the following reasons:
  - A large proportion of the post attack population will have ground source water available, and these waters, if protected from source to distribution, will be free of radioactivity.
  - Communities that must rely upon surface sources that are in the fallout region will have contaminated water available for consumption, but the biological effects arising from drinking surface waters contaminated by fallout deposited directly into the surface source generally would be insignificant compared with other hazards.
  - The contamination of surface waters by run-off from contaminated land areas, probably would not exceed the initial contamination from direct deposit of fallout in exposed water sources.
  - Water softening and water purification plants would provide sufficient decontamination of the water to significantly reduce the absorbed doses to body organs.
  - Water-source contamination by fallout would be a secondary problem in any post-attack environment; rather Water Distribution would be the major problem, especially for survivors in targeted cities.

Therefore, we must next look at the water utility, your plant and the personnel involved in it.

The Water Utility in the Nuclear Age

Civilization as we know it in the world today would not have been possible without the development of the major public utilities; electricity, water supply, sewage disposal and fuel distribution.

Among the others, the water utility is taken for granted by the population of Canada. Our water utilities are generally well maintained, and virtually trouble free. Breakdowns are dealt with expeditiously, and even major interruptions of service occasioned by peacetime disaster have been rectified promptly, without undue danger to the health or economy of the region affected.

It is an unfortunate fact of life that water utilities in Canada are highly vulnerable to nuclear attack. Under any conceivable set of circumstances in a major nuclear war, the number of Canadian targets would probably be small. Nevertheless, as we have said, even without a single strike on Canadian soil the lives of the majority of our populace could be endangered by radioactive fallout from surface bursts in the United States. It is true that most people in the paths of radioactive clouds could be saved from excessive exposure to gamma radiation by taking refuge in shelter areas designated by Emergency Measures planning staffs. It is equally true that the same people could die of many other causes in the absence of potable water, food, heat and adequate sanitary facilities. The prompt restoration of utilities is therefore of paramount importance to save the survivors of an attack. In the longer term, national recovery itself becomes feasible only after the power comes back on, and water, and other services function once again.

Those charged with the operation of water utilities are accustomed to troubles, emergencies, and even disasters. They bear a heavy responsibility to the general public, and they are well trained and organized to discharge their responsibility quickly and effectively.

Let us look at a conventional water supply system in an area subjected to the effects of a nuclear explosion. It is not surprising to discover that its capability, and indeed its very existence may become seriously threatened. Should vital components of the system be located in the area of total destruction, it follows that they will be totally destroyed. In many cases their loss would cause the entire system to become useless; in others, it may be possible to utilize surviving components in an improvised post-attack water distribution utility. No amount of advance preparatory work will significantly improve the situation in the vicinity of ground zero; but who knows where ground zero will be? We do know that despite the very large areas of total destruction that would result from a nuclear attack, there will always remain vastly greater areas which would be subjected to damage of a lower order, or to fallout only. It is in these areas that there will be survivors, and they will require water to fight fires, to drink and to carry out decontamination of plants and personnel. The water utility must direct its planning towards reinforcement of the success represented by people and equipment that manage to survive the initial attack.

Advanced Planning for Post-Attack Recovery of Plant and Personnel

It is evident that effective post-attack recovery begins with advance planning and preparatory measures. Although absolute protection of waterworks from blast is not attainable, there is, nevertheless, a great deal that can be done, at reasonable cost, to protect plant personnel and equipment against the effects of low-order blast, including its secondary effects. The "hardening" required for this purpose will depend upon the importance of the particular structure to the system as a whole, but in any case will automatically include a degree of protection against thermal and fallout radiation. I am going to read off the possibilities and would like you to review in your own minds your present facilities and what you could do:

- Provision of a central protected area for the operating crew, complete with facilities for 14 days' existence (in the plant basement, if possible.)
- Provision of small protected operating areas in various key parts of the plant, convenient to vital operations such as pump control stations, chemical feeder controls, filter banks.
- In key areas, take action to minimize the production of blast-induced missiles, which can injure personnel and damage equipment. This involves the shuttering of windows and covering of frangible materials used in construction of the building.
- More delicate equipment should be protected by wire screen cages or other means. Simple shock mounting is advisable, and not unduly difficult.
- While extensive structural reinforcement is not feasible, weak components should be strengthened. It is axiomatic that overhead structural slabs must be capable of carrying debris loads to which they may be subjected in the event of building collapse, which on the average could be expected to occur at 6 or 7 p.s.i.
- Underground piping, reservoirs, submersible pumps and intake structures are, as a general rule, highly resistant to blast. Superstructures in the system do not enjoy this degree of resistance, but in many cases stiffening, shoring and bracing will be of assistance.
- Plant laboratories, which are essential to quality control, must be located in areas enjoying maximum protection. In large systems, quality control can be ensured by establishing a second laboratory at some distance from the main one.
- Alternate water sources should be tied into the system whenever feasible.
- Auxiliary power and communications systems are essential.
- Ideally, automatic and remote control systems should be installed for plant operations, with control panels located in protected areas.
- Preservation of essential records. It is important to have all records and plans of utility installations microfilmed and stored at every appropriate emergency government headquarters facility.

Effects of Fallout on Restoration

Thermal effect fires and fallout radiation can still present a serious threat at distances from the explosion where the blast wave ceases to cause damage. Protection against thermal radiation is not difficult at the distances with which we are concerned; it is primarily a matter of good housekeeping, and avoiding line-of-sight situations for plant personnel or inflammable contents. The normal design, location, and operation of waterworks are such that the thermal effects of explosions can be dealt with more readily than the other nuclear phenomena.

Radiological Decontamination

The high priority facilities and critical areas which are found to contain significant radiological contamination may have to be decontaminated. Boundaries of critical radioactive areas should be marked and posted if this has not already been done by reconnaissance personnel to avoid external contamination of the body.

Decontamination Methods

Decontamination of facilities may be accomplished by the removal of fallout, or by covering it with soil or other material.

Paved area decontamination can be accomplished with water hoses and street flushers or by dry methods using motorized "street" sweepers, vacuumized "street" sweepers, air brooms, vacuum cleaners and hand push brooms. Unpaved area decontamination can be accomplished using motorized scrapers, motor graders, bulldozer, plows, hand shovels, and wheelbarrows. Both paved and unpaved areas can be covered with uncontaminated fill. Structures can be decontaminated by such methods as water hosing, or by dry methods such as vacuum cleaning or hand brooms. If water is used for decontamination purposes it will become contaminated itself and some consideration should be given to its safe disposal.

Protection of Personnel

Fallout radiation, on the other hand, confronts the operators with a host of unfamiliar problems. Moreover, post attack maintenance and repair work on exposed parts of the plant and its distribution system could easily lead to radiation casualties among the staff; therefore, before beginning recovery and repair actions at a waterworks facility an assessment of the

character and extent of the radioactive fallout contamination must be made so that necessary precautions may be taken for the protection of the waterworks personnel.

To minimize exposure to radiation, the utility management must control the movement of personnel from shelters to perform essential work. The most urgent repairs should be made (after necessary minimal decontamination) and the less-urgently needed repairs should be deferred for a sufficient time for the radioactive decay to reduce the hazard in the area. If the job would result in overexposure when assigned to one individual, the additional workmen should be assigned in such a manner that none of them is overexposed and lost to later recovery operations.

The risk involved when any given individual is required to leave the shelter for performance of emergency functions can be determined from such factors as his accumulated radiation dose, the radiation rate outside the shelter, and the radiation doses that will result in varying expected degrees of injury.

Radiological decontamination of personnel should be accomplished under the supervision of trained personnel. Decontamination workers should wear dosimeters and keep close track of the total amount of radiation they are receiving.

Decontamination operations outside the shelter should receive special consideration. When the decision is made to recover a contaminated installation, the first step is to establish a suitable staging area from which the recovery operation can be launched. Next, the vital area is surveyed with regard to radiological contamination and physical condition, the site is prepared for recovery, and proposed reclamation measures are tested for effectiveness. The site is then prepared by removing debris and obstruction, checking the adequacy of water supply, drainage channels, etc. Your personnel need, therefore, to be trained and know in advance:

- The immediate action they are to take in an emergency.
- The extent of the responsibility they may have to take.
- Where and to whom they report.
- What emergency equipment they should carry or have readily accessible.
- Adequate means of identification for admission to protected areas.
- Some knowledge of area decontamination methods.

Assessing the Fallout Hazard

Information on the radiological condition of the environment can be obtained from data received by means of radio communications, from fixed station radiological monitoring at the control centers and other shelters, or from monitoring by field crews. The shelters may be equipped to take direct readings of the radiation level immediately outside.

Each water utility should have trained radiological defense officers available in the municipal EMO organization who can advise the utility top management. Radiological personnel evaluate the available radiological information taken from all possible sources and plan to minimize the radiological hazard; determine how long people must remain in shelters, who can leave, and for how long a period of time; determine the level of radiological risk; and advise shelter managers on radiological hazards.

During the emergency phase when people are confined to shelters, the municipal radiological monitors will maintain communications with all available sources of radiological information. They will prepare data plots showing radiation levels in the utility and neighboring areas and maintain a continuing check on personnel dosage records.

In the operational recovery phase, radiological monitors will continue to monitor and assess the environment. Personnel will be leaving the shelters for longer periods of time and the remaining stay times of individuals must be determined so that no one person will receive an excessive amount of radiation. The radiological monitors will have to advise on where, and where not, to go. In critical areas where there is significant contamination, decontamination may be necessary. The radiological monitor will assist this operation.

There are no direct methods generally available for measuring the concentration of radioactivity in water subjected to early fallout. This is not a problem with which the water utility management need concern itself. The utility should provide the best quality of potable water available in accordance with public health standards. Numerous studies, test and calculations have indicated that the biological effects to be expected from drinking water that has been contaminated by radioactive fallout would generally be insignificant compared with the external gamma radiation hazard.

Assessing the Physical Damage

The extent of physical damage to the water utility structures and equipment will have to be investigated and assessed. The reconnaissance should cover the intake facilities, treatment works, transmission lines, source facilities, distribution piping, pumping station and storage facilities. The condition of these facilities and their operational capability will have to be determined. The integrity of the distribution system, its ability to retain the water supply and to maintain pressure, and the level of pressure, will be an important part of the assessment. The extent of damage to the power facilities will also have to be investigated. Along with the damage assessment, determinations would have to be made as to the type and amount of repairs necessary to put the system back into operating

condition, the amount of equipment and personnel needed to do this and the time necessary to accomplish the work.

Emergency Water Treatment

Under normal conditions a water utility may have no treatment facilities whatsoever, or it may have disinfection facilities only, or there may be facilities for clarification, softening, filtration, and color and odor control as well. Following a nuclear disaster, it may be possible to operate without some of these features. The objective for service of potable water is a supply that can be used safely for drinking. For most of the other uses practically any water could be used as long as it does not clog the piping or pumps. Surface sources may be contaminated from radioactive fallout, from sewage, or from industrial chemicals. Water mains that have been fractured simultaneously with nearby sanitary sewers can be grossly contaminated and special precautions will be required to disinfect them prior to their being placed back into service. Low or negative pressures in the mains caused by unusual demands from fire fighting, breaks, etc., can result in back siphonage of sewage or industrial waste thus contaminating the water system.

The normally used treatment facilities should have a maximum degree of flexibility. There should be provision for ready conversion of all automated operations and controls to manual operation. After a disaster it is not unlikely that changes will be necessary in the operation of the treatment works. Disaster control procedures may provide for increased dosages of some chemicals and elimination of other chemicals during emergencies. Special treatment (e.g., increased chlorination) must be considered, as well as provision for bypassing the treatment works. A minimum 30-day chemical supply should be maintained at the treatment plant.

The utility should know where sources of chemicals are available in the area. Means should be provided to locate and use equipment, materials, and personnel available in the area which are necessary for the provision of emergency treatment.

Mobile treatment facilities are also necessary to provide the maximum flexibility in treating a contaminated supply at any point in the distribution system and for treating emergency auxiliary sources. Emergency mobile water treatment facilities should be maintained including both chlorination and filtration units with coagulation facilities. A plan should be prepared to use the mobile equipment to treat water that will be supplied to critical installations and consumers. Stockpiles of chemicals for the mobile units should be maintained.

Some health departments have portable chlorinators available for emergency use. Mobile units may prove especially useful in supplying the larger water allowances required for hospitals and mass-care centers. Waterworks personnel should have knowledge of all extra mobile treatment equipment and replacement parts in the area. They should be able to operate this equipment and should make arrangements for its use during emergencies.

The type and degree of treatment that must be given the emergency water source will of necessity rely on the judgement and decisions of the water utility and health department personnel. The crisis will probably not permit time for conventional laboratory analysis as a basis for determining treatment methods. Color, taste, odor, and turbidity of the water together with the sanitary location of the source will need to be evaluated before it can be determined if simple chlorination will suffice or if coagulation, settling and filtration will also be required.

The utility under its normal operation should have adequate laboratory monitoring procedures and should establish base lines on water quality levels beyond which predetermined procedures for identification, assessment of hazard and taking of protective measures including treatment are initiated. For emergency use, simple and rapid radiological detection techniques should be available. The chlorine residual test will have to be relied on as a principal measure of water supply safety against disease organisms pending the results of the more time-consuming bacteriological tests. The membrane filter test provides the most rapid method for determining possible bacterial contamination.

Chlorination, in spite of some shortcomings, is the best single protective device against pathogenic organisms. Consideration must be given to the limitations of such treatment. As you know, a free available chlorine residual of one mg/1 throughout the distribution system will kill or inactivate vegetative bacteria provided that the water supply is low in turbidity. A higher free available chlorine residual will be required to inactivate certain enteric viruses. The maintenance of free available chlorine at the highest possible level throughout the system consistent with palatability requirements is the single measure that will do the most to protect against biological contamination. However, consideration must be given to the length of time chlorine stocks will last before using high residuals in the system.

Water that must be taken from stream channels, ditches, or other surface sources, may be highly turbid, contain radioactive material particles and have a very high chlorine demand. In order to reduce this form of contamination an earthen settling basin should be constructed adjacent to the stream, to receive diverted water that could flow by gravity from the stream. The settling action in the basin will permit partial clarification of the water prior to further treatment and pumping to the point of use. Alum added to the water entering the basin would improve the clarification efficiency of the unit. Pump suction from such a basin should be as far as possible above bottom.

(Continued on page 19)

MUNICIPAL EMERGENCY PLANNING

(A Review of the planning assumptions, operations, and procedures of the Regina Emergency Measures Organization)

Editor's Note:

Hundreds of Canadian communities have formulated detailed plans outlining the responsibility of various departments and agencies in responding to peacetime or wartime disaster. One such city, Regina, Saskatchewan, recently distributed a nine-page mimeograph booklet to all civic employees which provides background information on the reasons for civil emergency measures planning in peacetime and describe the responsibilities of municipal departments in the event of disaster. The following has been extracted from the booklet prepared by Maurice L. Grenier, Director, Regina E.M.O. "Civil Emergency Planning in Regina", dated June 1967.

Preamble

A disaster can be described as any sudden calamitous event which produces great material damage, loss, and distress and which may be caused either by abnormal acts of nature, human carelessness, error, deliberation, or weapons of war.

The threat of war is ever-present and is evidenced by the international tension and armament build-up so obvious at this time. This plus the frequent occurrence of peacetime disasters points up the need for civil emergency planning, that is, planning by municipal, provincial and federal governments for the continuity of government in the face of sudden disaster and the safety and welfare of citizens entrusted to their care.

With the exception of military disaster our province has experienced in the past 75 years numerous disasters which have caused great personal and economic losses.

For example, we have experienced over 200 tornadoes, one of which killed 28 people in 1912. In 1964 a series of tornadoes carrying winds in excess of 100 miles per hour smashed across southern Saskatchewan leaving in their wake shattered buildings, twisted machinery and ruined crops—these storms were spawned by humid 90 degree heat and according to weather officials, exactly duplicated the conditions that bred the Regina Cyclone of 1912.

Blizzards have also imposed severe hardships upon Saskatchewan communities, restricting transportation and other essential activities and cutting off electrical power supplies. Also, spring thaws and unseasonal rains have turned normally placid Saskatchewan streams into rampaging torrents, flooding lowlands and causing economic losses and personal suffering.

Every bit as calamitous and sudden as natural disasters have been those caused by man himself. The 20th Century has introduced into our lives equipment, substances and activities which through carelessness, miscalculation, error or deliberation can result in real tragedy. In the field of transportation, for example, a T.C.A. North Star crashed into a Harvard training plane directly over the City of Moose Jaw on March 9th, 1954 killing 37 people.

Fuels and chemicals also pose a hazard, not only in their transportation, e.g., bulk carriers, pipe lines etc. but in their commercial and domestic storage and usage as well.

Other sources of peacetime disaster could be assumed such as structural collapses—which have occurred elsewhere in Canada, e.g., Bridge Collapse and high rise apartment collapse, Ottawa, 1966—, explosions, and conflagration. These assumptions or guesses become actual facts when the events actually occur.

One thing is positive: no community is immune from disaster. For every argument of the pessimist and the fatalist against civil emergency planning the practical-minded individual can present at least a hundred in its favour.

It has been proven beyond question that emergency planning pays off. For proof we only have to refer to the success of the emergency operations which followed disasters such as the Ville La Salle explosion in Montreal in 1965 in which natural gas leveled an occupied apartment block, the 1964 Alaska Earthquake, the 1966 hospital fire at Yellowknife, N.W.T., and the 1966 Manitoba floods. Also the result of emergency planning was the evacuation of over 500,000 persons from the State of Texas in the face of approaching Hurricane Carla in 1961.

In each of the foregoing events the communities involved were able to react successfully because of the planning which had been made beforehand.

The ability of a community to respond quickly and efficiently depends almost entirely upon its resourcefulness and operational readiness. By "operational readiness", I mean the 24-hour response-ability of each city department and assisting agency towards unexpected and abnormal demands for emergency service.

Thus, civil emergency planning is a necessity, a responsibility assumed by each level of government and carried out through the co-ordination and direction of their Emergency Measures Organization.

Function of Regina E.M.O.

The function of the Regina Emergency Measures Organization is to develop and co-ordinate the city's plans for continuity of leadership and provision for the safety and welfare of its citizens.

This planning is to consider not only the threat of a peacetime disaster but the hardships a national military emergency might impose upon our community. The preparation of an Emergency Operational Manual for the City covering both peacetime and wartime emergencies is the overall planning objective of this organization.

The main point to remember when considering the functions of the Regina Emergency Measures Organization is that it is essentially an emergency planning and co-ordinating department of the city as opposed to the erroneous concept that it is an operational department with emergency resources of manpower, equipment and supplies. In a disaster it is the city itself that responds, becoming the "emergency organization" which puts into effect the plans we are developing today.

Regina City Bylaw 3435 — 1961

With this Bylaw a city department was created to plan, develop and co-ordinate the city's response to disaster from any source whatsoever.
The department's name was changed by a motion of City Council in 1965 from "Civil Defence Organization" to "Emergency Measures Organization".
Bylaw 3435 defines specifically the responsibilities of elected officials and department heads with respect to disaster planning and operations.

Emergency Procedure for the City of Regina

To ensure the effectiveness of emergency operations in Regina following a non-declared or declared peacetime disaster (see R.S.S. 1965, Section 9, Chapter 417, and City Bylaw 3435), the Emergency Measures Executive Committee hereby designates the Regina City Police Department as the disaster control agency and the Chief of Police, or his representative, as the Command and Control Officer with authority to request the aid of essential services required at local disasters. Also, the Committee designates the Police Headquarters Building as the Command and Control Centre for such disasters.

1. *Non-declared disaster:*
   a) The senior police officer will immediately assess the situation and notify the services required such as: Fire, Ambulances, Emergency Welfare, Heavy Rescue, First Aid Personnel (St. John Ambulance Brigade), Health Services, Public Works and Engineering, Public News Media, Emergency Communications (Amateur Radio, C.B. Radio Service Clubs), Auxiliary Police, Transit System, Sask. Power Corporation, Motor Toboggan Search and Rescue, Underwater Rescue, Radiological Defence, Armed Services, Wardens, Personnel Department, Purchasing Department and any other essential services that may be required. (See Operational-Readiness Charts for names and telephone numbers connected with the above mentioned services).
   b) Alert city hospitals.
   c) Arrange to close off the disaster area as soon as possible.
   d) If there are a large number of casualties request release of Casualty Collecting Unit (C.C.U.) from the City's Medical Health Officer.
   e) Alert Department of Transport if a disaster involves aircraft and occurs beyond airport perimeters.
   f) Notify the Mayor or his representative and officials of the Regina Emergency Measure Organization of the disaster situation.
   g) Set up sub-control headquarters using police cruisers. (Communications may be established later with Central Command and Control at Police Headquarters if a state of disaster is officially declared).
   h) Maintain an environment in which each service is able to carry out its emergency operations effectively and without interference.
   i) Under the direction of the first doctor to arrive, arrange for an orderly and selective flow of casualties to hospitals, thereby ensuring that one hospital is not overloaded while others are idle. Keep families together as much as possible.
   j) Maintain a record of casualties dispatched to hospitals.
   k) Arrange for the protection of property and prevent looting.
   l) If necessary, requisition a nearby building as a temporary morgue.
   m) Co-ordinate all police activities.
2. *Declared Disaster*:
   a) The Emergency Measures Organization, under the direction of His Worship the Mayor and members of City Council, will assume Command and Control of Disaster Operations.

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EMERGENCY HEALTH PLANNING

Editor's Note:

Earlier this year the annual meeting of the Canadian Public Health Association was held in Ottawa. Emergency Health topics were discussed in the three day meeting when a panel discussion exchanged views on the subject *"Emergency Health PLANNING—Whose Responsibility?"*

The following papers, reprinted by kind permission of the Canadian Journal of Public Health, Volume 58, No. 10, October 1967, and by the Chief, Emergency Health Services, D.N.H. & W. represented views of eminent specialists in subjects related to civil emergency planning in Canada.

In introducing the panel discussion, Dr. R. W. Tooley, M.R.C.S., L.R.C.P., D.P.H., Chief, Emergency Health Services, Department of National Health and Welfare, told the association, . . . "Two points are of considerable relevance to emergency health planning. The first is that planning involves everyone from the federal government to the individual family unit. Secondly, it stresses the fact that to be effective planning must be done now."

The Relationship Between the Health Department and the Hospital in Emergency Health Planning

by
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The joint involvement of a health department with its community hospital service in emergency health services planning is one of the acknowledged steps towards the making of a community disaster plan. What is so often not recognized is that this same principle applies equally to successful grass-roots planning for even an ordinary day-to-day emergency health service. Sound basic planning must start with the handling of routine emergency care, examined in terms of its effectiveness in reducing risk to life or limb at any time and in any location. Once such a plan is found to be good then it can be expanded to cope effectively with a casualty load of epidemic proportions. Such a plan may then be sufficiently mature to operate under conditions of war.

Furthermore, joint planning between the health department and the hospital authorities is but one facet in the development of a community disaster plan. Involvement of other municipal departments early in such planning is of paramount importance, too.

Environmental Safety for the Hospital

Each health department should develop its own disaster plan, and in so doing careful arrangements must be made to maintain a safe environment for the operation of its hospital service. In addition to the usual means by which this can be brought about there is the additional consideration of providing an adequate protection factor for the hospital against radioactive fallout. Similar control measures directed against the inhalation and ingestion of radiation hazards are areas of municipal responsibility.

Disaster Plans

The development of hospital disaster plans has provided a sound basis for the assembly of our professional manpower and for a possible deployment of this manpower according to need. The mobilization of all medical and para-medical resources will be hospital centered at times of disaster and its availability there and beyond will depend upon the stage of maturity reached by the community in its emergency health planning. The hospital must prepare itself not only to handle mass casualties at short notice night or day, but also to direct an orderly evacuation of patients, to the road-line in the event of fire and beyond in the case of planned evacuation due to flooding, earthquake or other eventuality. Similar planning is required of the local health authority in the safe evacuation of occupants of public alternate care institutions. Without a plan there could not be orderly evacuation of any type. Loss of life may result as a result of this negligence. Plans to evacuate public buildings under any condition require careful thought and foresight on the part of all concerned.

Joint planning between a municipal health department and local hospitals will vary from district to district. Much of this planning will be influenced by

whether a municipality considers itself to be a target or reception area. The health department must always be ready to provide a leadership role and muster sufficient logistic and administrative support at critical times. Backup supplies for the hospital service must be secured and arrangements made for ample stocks of fresh biologicals, such as tetanus taxoid and antitoxin. The role of the health department in such planning is vital because of its access to government resources at times when such are required. The role of our Metropolitan Winnipeg Emergency Health Service is to provide:

a) continuing care for hospitalized patients;
b) emergency care for disaster victims, and
c) the provision of an emergency public health service.

Because of its classification as a target area and the threat posed in the past by the Red River, considerable evacuation planning has been carried out. With the co-operation of hospitals, information has been available as to the probable patient volume needing medical or nursing supervision during a period of evacuation. Arrangements have already been made with trucks and semi-trailers which can be readily adapted to patient transport at short notice. As a result of the close liaison which exists between the provincial and municipal emergency health services, rural hospitals have been chosen as relocation sites for city hospitals. This type of planning is very much dependent upon the layout of existing railroads and the municipal government has made it its business to know the number of cars necessary for the transportation of patients as well as their location. The heating of railway carriages is an important consideration during winter time and the location of steam is an important detail. Suitable railway loading points along the side of the permanent way have been inspected, chosen, and assigned to specific hospitals, The necessary medical supervision of hospital evacuation forms part of the specific hospital evacuation plan.

For major disasters involving one or more hospitals in the area, the municipal government has made arrangements for a number of casualty collecting units to be deployed as necessary. Inter-hospital radio communication is presently being set up as part of the municipal service. All of this is mentioned as an example to show the importance of sound planning between our community hospitals and the local government.

Casualty Care

Hospitals are becoming increasingly aware of their duty to provide an acute traumatic service to the public. Whether or not there is a teaching program for interns, hospitals realize that in some areas on-the-spot graduate assistance must be available at all times.

During recent years, doctors have become more and more part of the hospital complex, with increasing involvement in the emergency and outpatient department areas. This has been particularly noteworthy since the advent of prepaid hospital care. Perhaps this can be expected for several reasons; people are becoming increasingly mobile and general practitioners apparently less available. Because of the public belief that health is a right of every individual, many assume that all hospital services are prepaid under the new fiscal arrangements.

Furthermore, doctors are now referring more of their own patients to hospital outpatient facilities by preference. They cannot always cope with the demand made upon their office time and prefer to make their office calls coincide with their visits to patients on hospital wards. Others need the help in diagnosis which hospital services can offer and which is becoming less readily available to them in their current office practice, due to increasing cost. Modern surgical facilities which are now readily available on an outpatient basis make it more desirable to undertake certain minor procedures in the hospital rather than in an office practice setting.

These are just some of the factors which I believe are responsible for a trend which is bringing about an increasing identification of the medical profession with hospital practice and which may have a profound effect on our emergency arrangements, especially under the future influence of prepaid medical care. However, recognizing the increasing use of this area as a progressive step towards better patient care, we must be ever vigilant to see that encroachments are not made upon important space set aside by the hospital for the treatment of acute trauma. Forward planning in these areas should provide for generous allocation of space not only for the treatment of patients who are not for admission, but also separate arrangements for the handling of mass casualties. In this regard, close liaison between municipal and hospital authorities is important, hopefully carried out through the medium of an emergency health advisory council.

I have no doubt that a trend has already begun in Canada which will narrow the gap between a doctor's office and the hospital in which he works. For this reason I am particularly interested in the development of health centers throughout Britain. For example, the town of Hythe has a population of 15,000 people and owns a small community hospital of 22 beds. In association with this hospital the town has recently completed construction of a medical center for the benefit of three groups of general practitioners working in that area. The suites provided include office space, examining rooms and treatment areas. The general practitioners rent the office facilities at a very nominal charge and because of this advantage they willingly conduct the health unit arrangements of local government. Of particular interest is the fact that the medical health officer has no space in such a building. However, he believes in a closer working relationship between his own professional staff and the practising physicians of the community. For this reason he has

placed them together under one roof and the nurses have been assigned geographical areas of coverage arranged to match the service area provided by the local doctors.

The important matter to be considered here is the integration which has taken place between the medical services of the community and the other health facilities. Such an arrangement, if permanently established, could have an important bearing upon the quality of the emergency health service operating in that area. In a personal communication from one of the practitioners, I was interested to note that the arrangements are very popular. Of particular significance is the establishment of an ambulance station located in the grounds of the hospital along with the two houses for the drivers and their families. Health centers organized along these lines are beginning to show throughout Britain and the foresight provided by these municipal authorities in bringing about this development has been a progressive step towards emergency health.

Ambulance Service

Experience indicates that the care of acute trauma should start at the site of an accident and municipal authorities must see that adequate care is given to a patient from that moment onwards. Public education in the provision of first aid should probably continue until there is a knowledgeable person in every household. The development of a municipal ambulance service is another step. Surely there is a municipal duty to determine what standard of service should operate at that site. What qualifications should be required of ambulance personnel? Should the ambulance service be publicly administered? If so, where should it be housed? Should ambulance personnel be accompanied by an intern when out on a call? Are all hospitals able to provide the same standards of emergency service? For example if a neurosurgical service exists at one hospital and not at another, should this not have some bearing upon the handling of head injury? Such planning must naturally invòlve the help of the professions concerned. However, once a basic service for the handling of trauma can be made to operate in the best interest of the patient from the very moment of need, then the groundwork will be set for the development of a more ambitious emergency health service.

There is evidence that the emergency departments of hospitals will be used in increasing abundance in future and ambulance service on a regionalized basis will need careful planning. If, as is stated in the Health Charter for Canada, the word "universal" means "that adequate health services shall be available to all Canadians wherever they reside and whatever their financial resources may be within the limitations imposed by geographic factors" then we must make every effort possible to see that the existing services of our major hospitals are accessible to an ambulance service to all residents. Finally, the extent to which emergency health services are developed upwards from a sound basic service geared to meet the emergency needs of everyday life. This can be accomplished only through a close working relationship among all concerned.

The Health Department's Responsibility in Emergency Health Planning

by

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The Civil Defence Order, P.C. 1959-1041 decreed that emergency planning is a function of government and spelled out the responsibility of each Minister of the Crown.

At the provincial level of government, the powers and responsibilities are in all cases contained in provincial acts. Similarly, at the municipal level the authority is usually contained in a by-law.

Therefore emergency planning has become, in effect, a normal function of government at all levels.

What is the status of emergency health planning in Canada?

At the federal level we have an active and effective emergency health planning group in the Department of National Health and Welfare. The provincial health departments have all now a fully developed or developing emergency health services branch or division. Thus the federal and provincial health departments have accepted their respective responsibilities and taken the necessary steps to carry out this function. What about the local government—the community health departments? Have they accepted the responsibility that emergency health planning is a function of government?

We are not the only ones seeking an answer to the question "Whose responsibility is emergency health planning?" Dr. Herman E. Hilleboe, Commissioner, New York State Department of Health, had a succinct

answer "Is there a choice from a public health viewpoint?". In England Dr. R. C. Webster, Divisional Medical Officer, Lancashire County Council, summarized a paper on "The MOH and Disaster Situations" as follows:

"The MOH has the very great asset that the problems set for him in disasters are but an expansion of those which are in his everyday work: the control of infection; the prevention of disease and injury; and the giving of organized support to all measures to remedy conditions injurious to the city. In disaster as in normal conditions, his business is to concern himself with everything that affects the public health (the health of the public). This is his task in such incidents as arise in time of peace or war."

Dr. George Uhl, Director, Los Angeles Health Department, expressed the same thoughts in a different manner when saying: "To look at the role of the Public Health Department in the eventuality of a major disaster is to apply a telescopic lens to its day-to-day, year-by-year routine of preventing and meeting lesser crises, lesser emergencies. Only the scale of disaster varies; by its very nature a health department is a disaster preventing, disaster reducing, disaster curbing endeavour".

Dr. William W. Stiles, Professor of Public Health University of California, in answer to the same question, "Whose responsibility?" takes a negative approach when he says "As public health professionals, are we doing our part in disaster preparedness? If not, why aren't we? Are we so involved in the pursuit of 'a state of complete physical, mental and social well being' that we have not given serious consideration to the medical and health problems which would follow in the wake of disasters?"

Where do our public health associations stand? What is their answer to "Whose responsibility is emergency health planning?" The Canadian Public Health Association in resolutions passed at its annual meetings in 1961 and again in 1963, and in its submission to the Royal Commission on Health Services in 1962 emphasized the responsibility of the local health departments in emergency planning and urged planning and organization of emergency health services at the local level.

The American Public Health Association issued in 1962 a policy statement on the role of state and local health departments in emergency planning. It was stated in the preamble that

(1) Health departments are the governmental agencies around which may be organized city health resources and activities for unified and concerted action in disaster.

(2) Health departments can provide overall coordination for the necessary development of the emergency health services plan and organization and the various steps and procedures necessary to make it operational.

The APHA "Guide to a Community Health Study", Section 1, Chapter IX, presents a questionnaire on emergency health services, stating among the Recommended Standards and Objectives: "It is important that public health agencies vested with on-going health responsibilities administer the disaster health program".

We might say now, all that is fine and dandy. Here we have pronunciamentos from higher governmental and academic ivory towers. What about the public health men and women in the street, at community level, what do they think and what is their answer to "Whose responsibility?"

Some 600 public health personnel, physicians, nurses, engineers, veterinarians, inspectors, representing 95% of local health departments in Canada have attended the 12 Emergency Public Health Services Courses held at the Canadian Emergency Measures College in Arnprior since November 1962.

We popped the question to them "Whose responsibility is it?" and we have their answer in twelve little volumes summarizing their discussions. There was no dissenting voice or minority opinion. The concept was unanimously accepted that the community public health agency is the only logical one to assume leadership in the health field in disaster.

In conclusion, emergency health planning and organization is the development of means of bringing all essential community health resources to bear on disaster problems, that is, consolidation of health facilities, health personnel and health material within a single operation under centralized command and control. Whose responsibility is this centralized command and control? Is there any choice from the local health department viewpoint?

Emergency Health Planning in Nova Scotia

by

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Soon after World War II, the emergency health planning organization in Nova Scotia, as in the rest of the country, was known as the Civil Defence Health Services. It was completely voluntary, although leading personalities were members of the Department of Public Health. While good progress was made in some

areas of the province, the work without administrative backup, of necessity, had to be patchy. Volunteers could be counted upon in a national emergency, but they could not spare necessary time and effort for planning and training.

In 1957, still under Civil Defence, a full-time nurse was engaged and was given the task of organizing civil defence health services in the province. The staff situation remained stationary until the end of 1961, while in the meantime the modern emergency health services concept was created at the federal level following the Civil Defence P.C. Order of 1959.

The two nurses who successively filled the nursing consultant's position, being members of the Emergency Measures Organization and not the Department of Public Health, could only make limited progress through, literally, heroic efforts. They achieved improved training and some operational exercises. However, it was obvious that one person could not handle all the planning, training, operational problems and personnel involved in a complex operation. Therefore, a full-time medical director was appointed on January 1, 1962.

The medical director's status was initially rather vague. He was appointed to the Department of Public Health, but seconded full-time to the Emergency Measures Organization. However, it soon became apparent that it would be impossible to build up an efficient organization outside the Department of Public Health. The reasons for that were obvious: first one could not depend on volunteers making emergency planning a part of their daily routine; second, to create a shadow organization of people already full-time members of health professions and working in health installations would make no sense at all.

Following several conferences with the Deputy Minister of Public Health, it was agreed that the emergency health services planning is the responsibility of the Department of Public Health and comes under the jurisdiction of the Minister.

Initially a crash program was developed. As there was no cohesive organization at the time, key appointments were allocated and emergency terms of reference for medical officers of health, public health nurses and public health inspectors were drafted and approved. Under those terms of reference, the health unit directors became zone or deputy zone medical officers, responsible for coordination of not only public health measures in their territory, but also for taking administrative charge of all the health services in a national emergency.

The public health nurses, while abandoning some of their peacetime functions like home visiting and school health, would be responsible for the administrative charge of emergency clinics and for the organization of care for minor injuries in addition to communicable disease control and other public health aspects of their jobs.

The public health inspectors would extend their peacetime functions into all emergency installations and would be responsible for radiological and bacteriological safety of food at the consumer level.

The next step was setting up the Departmental Emergency Planning Committee. The Committee consisted of the directors of Health Units Services, Consultation Services, Public Health Nursing, Rehabilitation and Emergency Health Services.

As the program developed, it became necessary to extend the emergency function of the Department of Public Health far beyond that of its peacetime role. Besides bringing the Hospital Insurance Commission into hospital disaster planning and responsibility for emergency hospitals, it became imperative to plan for the emergency administration of all the health services instead of only public health services. There was no other machinery available to take on this task and with the full mobilization of surviving health professions, planning for such a machinery would involve not only many administrative complications but also considerable waste of manpower. Therefore, it was decided as early as 1962 that the Department of Public Health with the Hospital Insurance Commission will plan to administer and control all the health services in the Province of Nova Scotia in a national emergency.

This provided a planning base from which the provincial operational plan and all the subsequent programs were developed. At present the Emergency Health Services Division of the Department of Public Health consists of a director, a supplies officer (pharmacist), a nursing officer (R.N.) and a secretary. Their work is assisted by the Departmental Emergency Planning Committee and the Provincial Hospital Disaster Planning Committee. This Division will disappear as such in time of a national emergency and its members will assume their emergency assignments within the department.

The Division is in close contact with the federal Emergency Health Services Division which provides many forms of assistance.

The Department is actively engaged in practically all Emergency Health Services programs. First of those, the continuity of government program, is almost entirely the responsibility of the Department. On the provincial level, departmental representatives in the Regional Emergency Government Headquarters have been selected, with chains of succession, and all the officers concerned have been given sufficient training and indoctrination. All appointments to the Departmental Relocation Site have been made and the incumbents trained.The Departmental emergency alert warning system has been developed. For the purpose of emergency government, Nova Scotia is divided into three zones. All the zone medical officers and their deputies are health unit directors with the Department of Public Health, and the supervisors of public health nursing act as their advisers. The autonomous City of Halifax has a similar system and the Commissioner of

Health is the Emergency Health Services Director for the City of Halifax. All the other public health personnel working at the municipal level will be subordinate to the Municipal Emergency Health Services Medical Officers, who are recruited among local practitioners. They in turn will report to the Zone Medical Officers. Thus, it is between the zone and community levels that the non-governmental health services are interwoven with the departmental network. Some representatives of the health professions outside the government are included in the chain of succession at the provincial level, the professional staff of the Department being relatively small.

From this departmental commitment stems participation in other programs.

As far as casualty care is concerned, while there is no direct clinical commitment, operational control of all existing and emergency health installations will rest with the department in view of its role in the emergency administration.

The next program, that of care of intact population, will involve public health nurses to a very great extent. They will be put in administrative charge of all the emergency clinics. The care of the very minor casualties and all the common sickness in the community will be channeled through these clinics. Again, while the amount of clinical work involved will be relatively small, the administration will be done by the Department of Public Health.

In all public health measures, of course, departmental personnel will play a key function. In a national emergency, most problems are essentially not different from those encountered in peacetime, but they are greatly multiplied by the post-attack environment. Radiation protection is an added task and for that our public health inspectors are being continually trained.

All the public health units have plans for fulfilling their roles in the care of intact population and emergency public health measures. All the personnel have been assigned stations and duties, alternate headquarters for the units have been selected. Two of the units, comprising an entire zone, exercised their plans last June. The exercise consisted of mobilization, reporting readiness and solving problems supplied by headquarters during the exercise. The exercise was very instructive, showed a relatively high level of training of the departmental personnel and proved that in some areas, the health services are far ahead of other emergency services in their organization and planning.

The emergency health supplies program is administered by the departmental headquarters in Halifax with the assistance of health unit directors and pharmacists engaged in private business.

The training of departmental personnel is quite advanced. As emergency health planning is an accepted role of the Department of Public Health, this training is no longer voluntary and is limited only by other urgent commitments. Virtually all the departmental personnel have had some form of emergency health training, with senior officers having attended federal Emergency Health Services courses. A one-day Emergency Public Health Disaster Institute is conducted annually for new professional employees of the provincial and the City of Halifax Departments of Public Health. Departmental officers have lectured at both emergency public health and other emergency health services courses. The same principles apply to the City of Halifax with its autonomous department.

As this brief description of the above six programs would indicate, the Department of Public Health is completely responsible for and fully involved in planning, administration and operation of emergency health services. In fact, in wartime the emergency Health Services are the Department of Public Health augmented by certain outside personnel and agencies. There would be no emergency health services without the Department.

In a national emergency, the Department of Public Health will provide complete operational control and administration for all health services in the Province of Nova Scotia.

This, we feel, is the only way of maintaining any kind of operational readiness of the Emergency Health Services. ▲

RED CHINA

(Continued from page 5)

The Chinese Communists, at the moment, are very active in various countries of South America. Now I think that in their case, this interest derives not so much from Marxist ideology as from the Confucian concept of the world state. The Chinese do feel that they are commissioned to bring the light of Chinese culture and civilization to the Western world. Naturally, Chinese culture and civilization as they interpret it is not Confucian learning, for they have repudiated it except in one matter, that of Taoism. I am not trained in European history, but it does seem to me that within the Soviet world at the present time there is a slight shift in ideological emphasis, that Slavic Communism is now a compound of Marx and Plato. And I think that the Marxist element will become less and less and the Platonic become greater and greater. We have just heard about the elites and the power of the elites in Russia. This, of course, is a characteristic, Platonic concept. In his "Republic" Plato certainly disregarded and despised the lower classes.

In China, I think the same thing will happen but for totally different reasons. I think there that we shall have M plus T, Marxism plus Taoism, and I think as time goes on, and particularly after the death of Mao,

the situation there would be parallel to that which I mentioned for the Slavic world. We shall have M plus T, but with the M (the Marxist aspect) becoming smaller and smaller and the Taoist aspect becoming greater and greater, until perhaps the Marxist aspect may be forgotten altogether.

I read very carefully, whenever I am able to, the "Red Flag", the Chinese Communist ideological journal. My own interpretation of one of the aspects of the current cultural revolution in China is that here we see an attempt being made by certain Chinese intellectuals to rid the Chinese Communist movement of what is to them some embarrassing Marxist factors. Now it is one thing to rub out Marxist factors but it is quite another thing to write in as a substitute Taoist ideas and perhaps it may be that other ideas than Taoist may replace some of the deleted Marxist factors in the course of time.

In respect of the Red Guards activity, I think it is concerned chiefly with the domestic policy, although it seems to be very anti-foreign. Despite the surface appearance of being concerned with relations with foreigners, I think the Red Guards activity is primarily concerned with domestic matters and the Culture Revolution is primarily concerned with foreign affairs.▲

WATER RESOURCES

(Continued from page 10)

In the immediate post-attack period the public should be advised of the water quality in the mains, the means of obtaining a satisfactory water and the need, if any, to conserve or treat water. Statements issued by the utility should be concise and presented so as to eliminate as much anxiety as possible.

Notification of the public may be through radio, TV, sound trucks, etc. As part of the advance planning a survey should be made of all possible means of communication and plans should be prepared for their coordination.

Disaster instructions for the consumers should be issued by the water utility whenever possible in advance of an actual disaster. Typical notices to the consumer might include information on home storage of drinking and sanitary water, water waste prevention, what to do when the water service is interrupted, purification of contaminated or possibly contaminated water and the need and procedure for obtaining information on the water supply following a disaster. Placards and signs could also be prepared in advance to direct the public to water stations.

Some of the post-attack survivors will have either covered distribution reservoirs or ground water sources available, and this water if properly handled will be free of radioactive contamination.

Survival and Recovery

In an area subjected to heavy fallout, water in protected storage becomes a key asset to survival. Such water includes that contained in the system, other than in open reservoirs before the arrival of fallout. During the survival period, water held in bathtubs, domestic containers of all types, building piping systems and heating systems is invaluable as it may be all that is available. It must not be wasted for sewage disposal, firefighting or decontamination. Water in deliberately flooded basements is suitable for these purposes. In the survival period, or shock phase, the water utility will be concerned with damage assessment, conservation measures and the supplying of priority customers, such as hospitals and fire brigades. As recovery becomes feasible, damaged parts of the system are repaired to provide minimum water requirements, and surviving components are operated to the extent made possible by treatment facilities, manpower, and electrical energy. The recovery period gradually blends into a reconstruction phase, and at this time the aim must be to restore the full operational capability of the utility.

Summary

These principles I want to leave with you:

- the most essential prerequisite to successful post-attack or disaster operation of a water utility is sound judgement on the part of management.
- this presupposes prior orientation and training so one can intelligently cope with a known problem.
- a dependable communications system is mandatory to permit exercising of judgement and making decisions so reports can flow in and orders can immediately follow.
- management decisions and plans must include establishment of priorities and conservation of both resources and personnel.

I would also like to point out that Canada EMO's advice to all citizens, to be self-contained with respect to food and water for fourteen days, has considerable significance in this connection; and if followed, would materially reduce the problems facing waterworks engineers and operators. It is suggested that it would be well within the interests of all water utility personnel to endorse and promulgate the advice.

Finally, I would like to again bring to your attention the fact that all risks are comparative. Under serious attack conditions the threat from radioactive contamination of water would be overshadowed by the general fallout threat. But in isolation it could be worthwhile doing something about it. Radiation is harmful and consuming radioactive water is not recommended. One risk is insignificant in the presence of the other; alone it could be very demanding. ▲

Your MP Reports from Ottawa

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From this week's mailbag some fighting words about the Emergency Measures Organization.

Defence Minister Drury

Dear Sir:

I think you underestimate the intelligence of the Canadian people.

I don't need to be made aware of the problems of surviving nuclear attack. There is no survival.

I have no faith in E.M.O.—NATO—NORAD—Spending estimates for defence production makes industry feel better—but not me—I resent every penny.

Why should Canadians be deluded into thinking explosives kill Japanese—Vietnamese and Arabs—but E.M.O. exercises will protect us.

A sane foreign policy is our only defence. Mr. Martin needs help—Mr. Ignatieff needs to realize he is representing the Canadian People.

It is brain power we need.

Sincerely
Mrs. J. B.

Dear Mrs. J. B.

Thank you for your recent letter concerning the problems of surviving nuclear attack.

The Canadian Government does not underestimate the catastrophe which the people of Canada would suffer in case of such an attack. Our efforts at the United Nations and in the field of foreign policy generally are devoted to creating an international climate where such a possibility is minimized. With this in mind, we have always been ready to make whatever contribution was called for to peace-keeping activities.

However, I cannot agree with your blanket statement that in case of nuclear attack, there is no possibility of survival for any segment of our population. Experience shows that properly organized emergency services, such as supplies of medicine, food and clothing, and a stand-by communications system, can diminish the number of casualties resulting from an attack, particularly in areas which are not directly hit.

Even in peacetime there are emergencies which can be more effectively dealt with by an existing organization which has experience in such matters and access to available supplies. The Emergency Measures Organization has proved most helpful in co-ordinating relief work during floods and other natural disasters.

This aspect of the Organization's work has implications which go beyond our own borders as the equipment which it stockpiles can be used on short notice when emergencies arise in other parts of the world. Recently, for example, we have been shipping portable hospital equipment to Vietnam.

For these reasons, the government considers the work of the Emergency Measures Organization not to be a substitute for a sane foreign policy but a complement to it.

Yours sincerely,

C. M. Drury
Minister of Industry

MUNICIPAL PLANNING
(Continued from page 12)

b) The Command and Control Centre will be located at City Police Headquarters.

c) Heads of City Departments and supporting services will proceed directly to the Control Centre.

d) Communications will immediately be established with sub-control headquarters (Police cruisers), hospitals, and each of the emergency services.

e) Central Command and Control will take all emergency measures necessary for the health and safety of persons and protection of property by:

(1) providing emergency assistance to disaster victims;

(2) the employing, with or without compensation, workers for emergency operations;

(3) the assigning of employees, property or equipment of the municipality for emergency operations;

(4) providing continuity of municipal government and leadership.

This Operational-Readiness Chart has been filled in by each City Department and assisting agency providing emergency services and copies distributed to police dispatchers and officials for 24-hour alerting purposes.

Regina E.M.O. Planning Procedure

Civil Emergency Planning in Regina is proceeding progressively in the following manner:

Step 1—development of municipal emergency services which are not normally supplied by the City, e.g., heavy rescue service, emergency welfare, radiological defences, winter rescue teams, and emergency communications;

Step 2—establishment of a Command and Control procedure to direct and co-ordinate disaster operations;

Step 3—development of a plan of emergency procedure for each essential service (Fire, Police, Welfare, Public Works and Engineers, Health, Transit, Personnel Department, Building Department, Rescue, City Administration, etc.);

Step 4—testing, reviewing and altering plans periodically.

Resources for Emergency Operations

In the event of a declared disaster the City of Regina, its employees, equipment and supplies, and those resources offered by volunteer agencies and private organizations, may be made available for the health and safety of persons and property including emergency assistance to victims. (Civil Defence Act, R.S.S. 1965, chapter 417). ▲

IN MEMORIAM

Major-General
F. F. Worthington, CB, MC, MM, CD

Following retirement from the Canadian Army, General Worthington served as Canada's first Co-ordinator of Civil Defence, 1948-1957. He died in Ottawa, December 8th, 1967.

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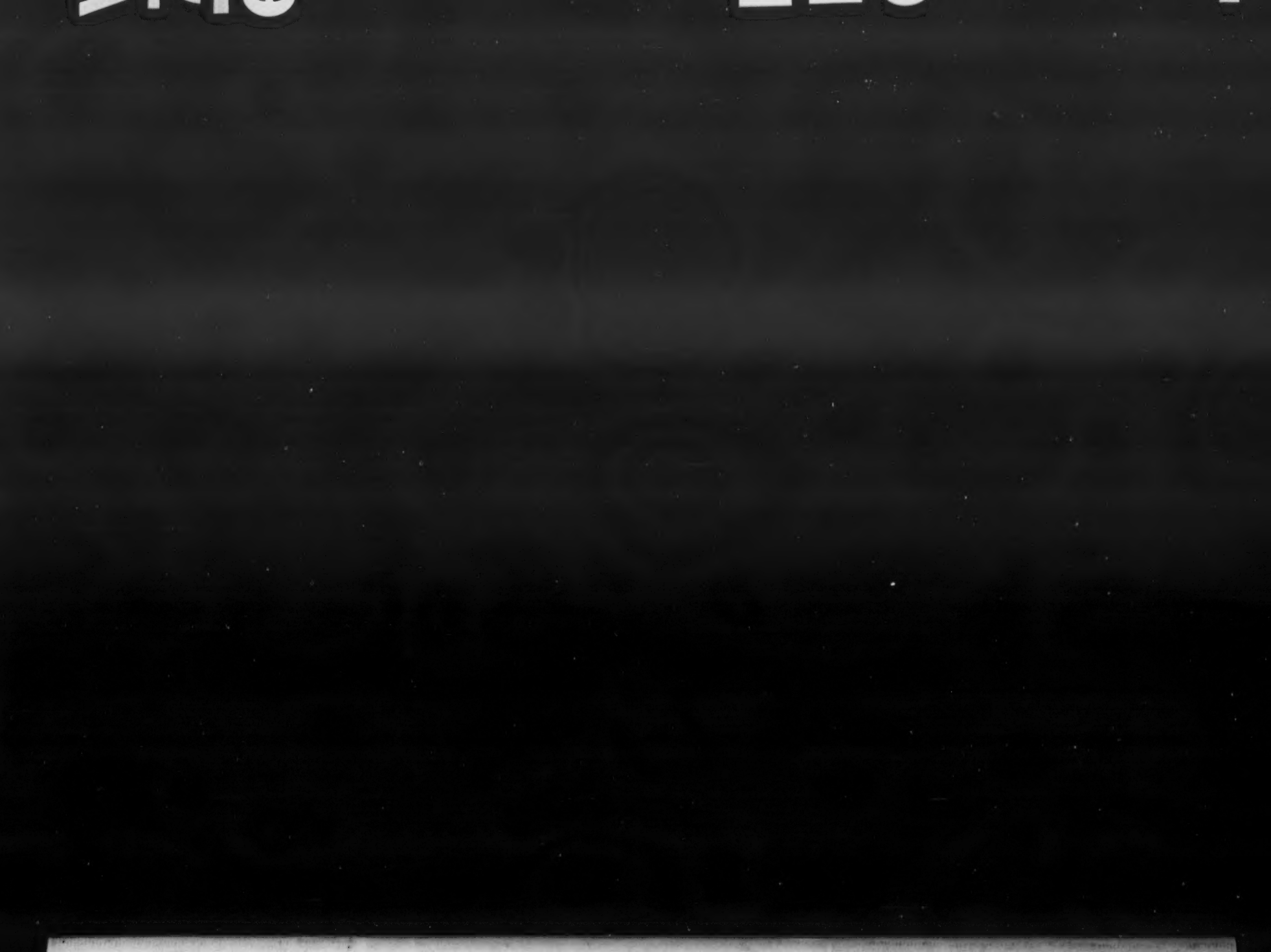
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